

WHAT IS CLAIMED IS:

1. A method for producing a cropped digital image, comprising the steps of:

- a) providing a plurality of partially overlapping source digital images;
- b) providing a cropping aspect ratio $L:H$, the cropping aspect ratio being the ratio of the length to the height of the cropped digital image;
- c) providing a cropping criterion, the cropping criterion being a criterion for the size and location of the cropped digital image;
- d) combining the source digital images to form a composite digital image;
- e) selecting the cropping region of the composite digital image according to the cropping criterion, said cropping region being a rectangular region having aspect ratio $L:H$, and having size and location determined by the cropping criterion; and,
- f) cropping the composite digital image to the cropping region to form a cropped digital image.

2. The method claimed in claim 1, wherein the step of providing source digital images further comprises the step of digitizing source photographic images to form source digital images.

3. The method claimed in claim 1, wherein the cropping criterion specifies that the cropped digital image is the composite digital image region having a largest area out of the set of composite digital image regions having aspect ratio $L:H$.

4. The method claimed in claim 1, wherein the cropping criterion specifies that the cropped digital image is the composite digital image region having largest area out of the set of composite digital image regions having aspect ratio $L:H$ that are centered at the centroid of the composite digital image.

5. The method claimed in claim 1, wherein the cropping criterion specifies that the cropped digital image is the composite digital image region having largest area out of the set of composite digital image regions having aspect ratio L:H that are centered at the centroid of the main subject of the composite digital image.

6. The method claimed in claim 1, further comprising the step of:
g) resizing the cropped digital image for display.

7. The method claimed in claim 1, further comprising the step of:
g) resizing the cropped digital image for hardcopy output.

8. The method claimed in claim 1, further comprising the step of:
g) transforming the pixel values of the cropped digital image to an output device compatible color space.

9. The method claimed in claim 1, wherein the source digital images have pixel values that are linearly or logarithmically related to scene intensity.

10. The method claimed in claim 9, wherein the step of providing source digital images further comprises applying a metric transform to a source digital image such that the pixel values of the source digital image are linearly or logarithmically related to scene intensity.

11. The method claimed in claim 9, wherein the step of providing source digital images further comprises applying linear exposure transform(s) to one or more of the source digital images to produce source digital images having pixel values that closely match in an overlapping region.

12. The method claimed in claim 9, wherein the step of providing source digital images further comprises applying radial exposure transform(s) to one or more of the source digital images to compensate for exposure falloff.

13. The method claimed in claim 1, wherein the step of combining source digital images further comprises the steps of:

- i) warping the source digital images to compensate for distortion due to perspective projection, yielding warped digital images;
- ii) aligning the warped digital images to identify overlapping regions; and
- iii) blending the warped digital images in the overlapping regions to form a composite digital image.

14. The method claimed in claim 13, wherein the step of blending warped digital images includes calculating a weighted average of the pixel values in the overlapping region.

15. The method claimed in claim 13, wherein the step of blending warped digital images further comprises the steps of:

- i) projecting the warped digital images to simulate image capture on parallel image planes, forming projected digital images;
- ii) morphing the projected digital images in the overlapping regions to form a projected composite digital image;
- iii) choosing viewing parameters for a composite digital image; and,
- iv) re-projecting the projected composite digital image to simulate image capture with the chosen viewing parameters, forming a composite digital image.

16. The method claimed in claim 1, wherein the step of combining source digital images further comprises warping the composite digital image to simulate projection onto a geometrical surface suitable for viewing.

17. The method claimed in claim 1, wherein the aspect ratio is a portrait aspect ratio.

18. The method claimed in claim 1, wherein the aspect ratio is a landscape aspect ratio.

19. The method claimed in claim 1, wherein the aspect ratio is 3:2.

20. The method claimed in claim 1, wherein the aspect ratio is 16:9.

21. The method claimed in claim 1, wherein the aspect ratio is 3:1.

22. The method claimed in claim 1, wherein the aspect ratio is 2:3.

23. The method claimed in claim 1, wherein the aspect ratio is 9:16.

24. The method claimed in claim 1, wherein the aspect ratio is 1:3.

25. The method claimed in claim 1, wherein the aspect ratio is included as meta-data with at least one of the source digital images.

26. A system for producing a cropped digital image, comprising:

- a) a plurality of partially overlapping source digital images;
- b) means for specifying a cropping aspect ratio L:H, the cropping aspect ratio being the ratio of the length to the height of the cropped digital image;
- c) means for specifying a cropping criterion, the cropping criterion being a criterion for the size and location of the cropped digital image;
- d) means for combining the source digital images to form a composite digital image;

e) means for selecting the cropping region of the composite digital image according to the cropping criterion, said cropping region being a rectangular region having aspect ratio L:H, and having size and location determined by the cropping criterion; and,

f) means for cropping the composite digital image to the cropping region to form a cropped digital image.

27. A computer program product for performing the method of claim

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1. A computer program product for performing the method of claim 1.